Remarks

I. Introduction

This is in response to the Office Action dated October 27, 2004. The Office Action objected to claims 33-57 and 59-61 under 37 CFR 1.75 as being a substantial duplicate of respective claims 2-26 and 28-30. In response to the 37 CFR 1.75 rejections, Applicants have amended claims 33-57 and 59-61.

The Office Action rejected claims 3, 13, 14, 34, 44, and 45 under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention. Claims 31 and 62 were rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 6,728,484 to Ghani et al. (Ghani). Claims 1-12, 15-25, 27-30, 32-43, 46-56, and 58-61 were rejected under 35 U.S.C. §103(a) as being unpatentable over Ghani in view of "Networks Telecom Dictionary" to Newton (Newton) and "A Framework for MPLS" to Callon et al. (Callon). Claims 63 and 65 were rejected under 35 U.S.C. §103(a) as being unpatentable over Ghani in view of Callon. Claims 64 and 67 were rejected under 35 U.S.C. §103(a) as being unpatentable over Ghani in view of Callon and "Resource ReSerVation Protocol (RSVP)" to Braden et al. (Braden). Although the Office Action recites claim 67 as being rejected under 35 U.S.C. §103(a), Applicants respectfully submit that Applicants' originally filed application includes claims 1-66. Thus, Applicants respectfully consider the Office Action's rejection of claim 67 to be a rejection of claim 66 instead.

In response to the §112 rejection, Applicants have amended claims 3, 13, 14, 28-30, 33-57, and 59-61. In response to the §102 and §103 rejections, Applicants have also amended claims 1, 2, 20, 27, 31, 32, 58, 62, 64 and 66 and canceled claims 63 and 65. Claims 26 and 57 were objected to as being dependent upon a rejected base claim. Claims 13, 14, 44, and 45 would be allowable if rewritten to overcome the rejections under 35 U.S.C. §112, second paragraph, and to include all of the limitations of the base claim and any intervening claims. Claims 1-62, 64, and 66 remain for consideration.

II. Rejections under 37 CFR. 1.75

Claims 33-57 and 59-61 were objected to under 37 CFR 1.75 as being a substantial duplicate of respective claims 2-26 and 28-30. In response to the rejections under 37 CFR 1.75, Applicants have amended claims 33-57 to depend from independent claim 32 and claims 59-61 to depend from independent claim 58. Accordingly, withdrawal of the 37 CFR 1.75 rejections is respectfully requested.

III. Rejections under 35 U.S.C. §112

Claims 3, 13, 14, 34, 44, and 45 were rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention. In particular, claims 3 and 34 were rejected for lacking antecedent basis for "said uniquely assigned network address". Claims 13 and 44 were rejected for lacking antecedent basis for "said probe message". Claims 14 and 45 were rejected as lacking antecedent basis for "said wavelength availability vector". In response to the §112 rejections, Applicants have amended claims 3, 13, 14, 28-30, 34, 44, and 45. Accordingly, withdrawal of the §112 rejections is respectfully requested.

IV. Rejections under 35 U.S.C. §102

Claims 31 and 62 were rejected under 35 U.S.C. §102(e) as being anticipated by Ghani. In order for a claim to be anticipated under 35 U.S.C. §102, **each and every** limitation of the claim must be found either expressly or inherently in a single prior art reference. PIN/NIP, Inc. v. Platte Chem. Co., 304 F.3d 1235, 1243 (Fed. Cir. 2002). In the present case, Ghani does not show each and every limitation of claims 31 and 62. Therefore, Applicants request the withdrawal of the rejection under 35 U.S.C. §102(e).

Independent claims 31 and 62 have been amended to add the limitation that the requesting establishment of a lightpath is accomplished via an API call comprising parameters. Ghani does not disclose each and every element of

claims 31 and 62 and therefore claims 31 and 62 are not anticipated under 35 U.S.C. §102(e) by Ghani. Ghani discloses channel provisioning in optical wavelength division multiplexing (WDM) networks. The Office Action cites that Ghani discloses an interface to program the WDM in Fig. 5. At col. 9, lines 37-44, Ghani discloses that "[l]ink requests or network-level traffic/usage measurements 430 are provided to the optical layer user network interface 410. The optical layer user network interface 410 includes a WDM management layer 440 for receiving the link requests or network-level/usage measurements 430. The WDM management layer 440 provides control settings 442 to the Physical WDM layer 444." Thus, Ghani discloses a network interface that enables communications between different WDM layers but does not disclose an application programming interface having parameters.

Claims 31 and 62 have the limitation of "requesting establishment of a lightpath via an API call comprising parameters." Applicants' Specification specifically discloses, on page 16, lines 7-11, that "signaling mechanisms to construct optical lightpaths are needed. An Application Programming Interface (API) call to create a path requires...parameters including: destination, bandwidth, restoration flag, and a transparency flag. An API call generates a message." Thus, the API call generates a message and includes parameters that are used in the creation of the message. Although Ghani does disclose messages and different message types in Fig. 6, Ghani does not disclose using an API having parameters to generate a message. As such, claims 31 and 62 cannot be anticipated by Ghani under §102, and Applicants request allowance of amended claims 31 and 62.

V. Rejections under 35 U.S.C. §103

Claims 1-12, 15-25, 27-30, 32-43, 46-56, and 58-61 were rejected under 35 U.S.C. §103(a) as being unpatentable over Ghani in view of Newton and Callon. Claims 63 and 65 were rejected under 35 U.S.C. §103(a) as being unpatentable over Ghani in view of Callon. In response to the §103(a) rejection, Applicants cancel claims 63 and 65. With respect to claims 1-12, 15-25, 27-30,

32-43, 46-56, and 58-61, none of the references, either alone or in combination, disclose Applicants' invention.

Independent claim 1 is directed to a method for lightpath provisioning in a reconfigurable optical network. Claim 1, as amended, contains the step of "generating an API call to create a lightpath, said API call comprising parameters and resulting in a message".

Thus, the claim requires generating an API call to create a lightpath. The API call includes parameters and results in a message. Ghani does not disclose generating an API call to create a lightpath, instead only mentioning messages. Nowhere does Ghani disclose using an API to create a lightpath.

Newton also fails to disclose the limitations of claim 1. Newton discloses a definition of an API. Newton does not, however, disclose using an API for lightpath provisioning in a reconfigurable optical network. Thus, Newton does not provide any suggestion to combine an API with a reconfigurable optical network.

Callon also fails to disclose the limitations of claim 1. Callon relates to a framework for multiprotocol label switching (MPLS). Callon does not, however, disclose an API call to create a lightpath. In fact, Callon does not disclose an optical reconfigurable network. Although Ghani discloses, at col. 14, lines 57-60, that lightpath request and release generation can be premised upon traffic management procedures at the higher layer protocols (such as MPLS), neither Ghani nor Callon (or Newton) disclose generating an API call to create a lightpath, where the API call has parameters and results in a message.

Therefore, independent claim 1 is allowable for the reasons discussed above in conjunction with claims 31 and 62.

Similarly, independent claims 27, 32, and 58 are allowable for the reasons discussed above in conjunction with claims 31 and 62.

Claims 64 and 67 were rejected under 35 U.S.C. §103(a) as being unpatentable over Ghani in view of Callon and Braden. None of the references, either alone or in combination, disclose the invention claimed in claims 64 and 67.

Independent claim 64 is directed to a method for removing a lightpath in a reconfigurable optical network. Claim 64 contains the steps of "allowing said lightpath to be released by expiration as a result of a soft-state, wherein said soft-state fails to timely forward a message to create said lightpath in order to maintain said lightpath before expiration of a time-to-live value." As the Office Action admits, Ghani does not disclose allowing a lightpath to be released by expiration as a result of a soft-state, and instead relies on Callon and Braden to provide the missing disclosure. Callon, however, similarly fails to disclose the releasing of a lightpath as a result of a soft-state. Instead, Callon only discloses state information, such as on page 58 ("a link state database"). Nowhere does Callon disclose soft-state.

Similarly, Braden fails to cure the deficiencies of Ghani and Callon. Braden discloses a resource reservation setup protocol (RSVP) designed for an integrated services Internet (Abstract). Although Braden discloses soft state in Section 2.3 on page 22, Braden does not disclose using soft state with respect to releasing a lightpath. Instead, Braden focuses on managing the reservation state in internet routers and hosts.

Moreover, although Ghani discloses the use of MPLS on col. 14, lines 57-60, Ghani specifically discloses "lightpath request (and release) generation, premised upon some form of traffic management procedures at the higher layer protocols (such as MPLS). The Background of the Applicants' Specification, however, specifically discloses at page 3, line 23 to page 4, line 2, that "[a]gile dynamically configured OLXCs allow the use of the optical layer to directly implement these functions, avoiding having ATM or MPLS as intermediate layers in future networks." Thus, Applicants' Specification does not disclose using MPLS as a "higher layer protocol" as disclosed by Ghani. Therefore, there is no motivation to combine Ghani with Callon and Braden in order to teach the limitations of claim 64.

Independent claim 66 is allowable for the reasons discussed above in conjunction with claims 1, 27, 32, 58, and 64.

For the reasons discussed above, all independent claims are allowable over the cited art. Allowance of all independent claims is requested. All remaining claims are dependent upon an allowable independent claim and are therefore also allowable. In addition, the dependent claims add additional patentable subject matter and are also allowable for the reasons discussed below.

Dependent claims 2 and 33 contain the limitation of "uniquely assigning said IP address to each network addressable element used along said route through said reconfigurable optical network according to an OLXC from which said network addressable element is sourced." Ghani, Newton, and Callon fail to disclose this limitation because none of the cited references disclose assigning an IP address to each network addressable element used along the route through the reconfigurable optical network according to an OLXC from which the network addressable element is sourced. Therefore, claims 2 and 33 are allowable for the reasons discussed above in connection with claims 1 and 32, respectively.

Dependent claims 4 and 35 contain the limitation of "assigning a unique IP address to a non-IP aware client." Ghani, Newton, and Callon fail to disclose this limitation because none of the cited references disclose assigning a unique IP address to a non-IP aware client. In fact, none of the cited references even mention a non-IP aware client. As such, Applicants request withdrawal of the §103 rejection with respect to these claims.

Dependent claims 5 and 36 contain the limitation of "assigning a unique IP address to an OLXC port to which a non-IP aware client is attached." Ghani, Newton, and Callon fail to disclose this limitation because none of the cited references even mention a non-IP aware client. Applicants' originally-filed Specification discloses, on page 11, lines 14-21, at least that a "source can also be a non-IP NE connected to the OLXC via an OC-48/192 interface. ... In the case of a non-IP NE, either the NE will be assigned an IP address, or the OLXC port connecting the NE will have an IP address." None of the cited references

even mention a non-IP aware client. As such, Applicants request withdrawal of the §103 rejection with respect to these claims.

Dependent claims 7 and 38 contain the limitation of "wherein said information regarding said state of said reconfigurable optical network is maintained in a soft-state." Ghani, Newton, Callon, and Braden fail to disclose this limitation because none of the cited references disclose maintaining information regarding a state of a reconfigurable optical network in a soft-state. As described above, Braden only discloses soft-state in light of "an integrated services Internet." The other cited references do not disclose using a soft-state at all. Thus, none of the cited references disclose using a soft-state in a reconfigurable optical network.

Dependent claims 9 and 40 contain the limitation of "forwarding an acknowledgement from each IP router indicating that said IP router's respective OLXC has been configured." Ghani, Newton, Callon, and Braden fail to disclose this limitation because none of the cited references disclose forwarding an acknowledgement from each IP router indicating that the router's OLXC has been configured. In particular, Ghani discloses, in col. 11, lines 44 - 47, that "the destination node signals a channel request accept message upstream to the originating source node." Ghani does not, however, disclose acknowledging that the router's OLXC has been configured. Moreover and as described above, Callon and Braden do not deal with reconfigurable optical networks and, therefore, do not disclose acknowledging that the router's OLXC has been configured. Thus, none of the cited references disclose acknowledging that the router's OLXC has been configured.

Dependent claims 12 and 43 contain the limitation of "wherein said current topology of said reconfigurable optical network is determined by sending a probe message to determine available wavelengths along wavelength continuous routes." Ghani, Newton, Callon, and Braden fail to disclose this limitation because none of the cited references disclose determining the current topology of the reconfigurable optical network by sending a probe message to determine available wavelengths along wavelength continuous routes. Although Ghani

discloses a channel request message, Ghani does not disclose sending a probe message to determine available wavelengths along wavelength continuous routes. Similarly, Newton, Callon, and Braden all fail to disclose sending a probe message to determine available wavelengths along wavelength continuous routes. Therefore, claims 12 and 43 are allowable over the cited references.

Dependent claims 15 and 46 contain the limitation of "selecting from among the available wavelengths using an arbitrary wavelength assignment scheme." Ghani, Newton and Callon fail to disclose this limitation because none of the cited references disclose selecting from among the available wavelengths using an arbitrary wavelength assignment scheme. Therefore, claims 15 and 46 are allowable for the reasons discussed above in connection with claims 1 and 32, respectively.

Dependent claims 3, 6, 8, 11, 16-25, 28-30, 34, 37, 39, 42, 47-56, and 59-61 are allowable for the reasons stated above and because they depend from an independent claim.

VI. Conclusion

For the reasons discussed above, all pending claims are allowable over the cited art. Reconsideration and allowance of all claims is respectfully requested.

Respectfully submitted,

Andrew F. Abramson
Reg. No. 52,538
Attorney for Applicants
Tel.: 973-533-1616

Date: January 24, 2005
AT&T Corp
Room 2A-207
One AT&T Way
Bedminster, NJ 07921